# Tackling the challenges of technology and artificial intelligence is essential

**In a world full of machines, the role of teachers will be even more focused on providing students with personalised support**

by Ana Moreno Salvo

## INTERVIEW WITH MIQUEL ÀNGEL PRATS FERNÁNDEZ

**The advancement of technology and artificial intelligence is rapidly transforming the world and the way we live. How should the education sector view or interpret this transformation?**

In the first place, we have to think about the major need we teachers and educators have to become literate in everything related to data, to quantify them, value them and know exactly that we are working with machines and that behind them there is data.

Secondly, we are faced with the huge challenge of revitalising and resignifying in-person activities. We have know what we should do in class and in the presence of these powerful technological tools. We have to ask ourselves why it is worthwhile for us to learn about and take advantage of them.

The third challenge is related to the fact that these "smart machines' or "smart technology tools' may eventually allow us to automate a whole range of tasks. We have already experienced them making our lives a little "easier"; they can help us at work, too, so we can devote ourselves to really enhancing our student support. We are facing a very interesting challenge: to ask these virtual butlers or assistants we will end up having to do jobs. This is all moving very quickly. I think that within a year we will start to have our own little artificial intelligence virtual butlers. This will make it easier for us to devote much more time to individualised student attention and therefore for teaching to be much more personalised.

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The fourth challenge has much to do with the ethical aspect or critical thinking. We have to question all the technology we use, we should not believe everything we see and we

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should ask about what media we are consuming when we use technology. We need to become questioners of everything around us.

**What do you think are the priority challenges that teachers are facing in their ongoing professional training to meet the educational needs of the digital era?**

There is an aspect that has a lot to do with the bureaucratic side of filling out paperwork, applications, appeals, documentation and all that. If these tools can help us do that, it would be great.

Another challenge has to do with the emotional dimension. We teachers need to prepare ourselves emotionally for everything that lies ahead. We have to be able to be mentally flexible and have huge doses of emotional reserve to be able to learn, unlearn and relearn. Therefore, we have to be very flexible. We will have to start working on issues related to with this personal support or being tutors. And that is a very interesting task. Some teachers say, "don't bother me with that; I'm a maths teacher", because I don't know if maths will be better explained by artificial intelligence someday. Our task will probably involve support, monitoring, individualised attention to a series of students whom we will have to assist in their growth and character. In the end, we will have "to grow by making grow" in Xavier Marcet's words.

The priority challenges have to do with soft skills: decision-making, teamwork and problem-solving. How can we help our students to have or gradually acquire the 6Cs that Michael Fullan often talks about: communication, collaboration, creativity, critical thinking and especially civility and citizenship, and compassion and character? Therefore, the aim is to help these students to become self-leaders, self-regulators and self-knowledgeable.

We have to be able to work with them, help them know how to interpret what is going on around them or in a given situation. Artificial intelligence will not be able to do that. I often tell students: "Hold on a minute, stop. What are you looking at? What is happening right now? How is that person feeling? What did this other one just say? Did you hear what you are saying? How should we proceed from here?" A machine won't be able to do that, and the big challenge is to know how to take advantage of this. Coming to class should be worthwhile to work on these questions and learn how to interpret the environment, oneself and others... I am not saying that knowledge is not important, but we have to find this balance. In the future, we will not have so many master classes; instead, we will have to find that balance of making them work more as a team and being able to find other strategies.

**How can digital technology help teachers to improve their day-to-day work?**

Technology harbours huge possibilities. Many of these emerging tools that have an artificial intelligence component are already beginning to appear. We even see how they can help us in our teaching, like writing exams, exercises or certain teaching materials. There is a series of resources where technology can help us a lot, such as planning and designing our teaching action. It will allow us to work more collaboratively with other teachers and schools to create projects together.

We will have to be very creative. Ultimately, technology only puts a mirror in front of us so we are able to rethink our role in a world full of machines.

**There are many teacher training models. What are the key features of effective teacher training in digital competency?**

Digital competency is an issue that has a lot to do with what I often call "disconnecting to connect", having attitudes. And when I say attitudes, I mean that we are capable of putting the brakes on it, setting limits and knowing how to regulate it.

What key features are needed for good digital competency training? The first is that it should not be completely exceptional but instead an everyday, invisible thing. We should not be afraid of it; it should become just another task that we can hybridise. Also, let's meet face-to-face; we can use personal encounters when needed.

There are different models, which means that we are probably talking about a kind of session that deals solely and exclusively with technological issues. It would be healthier, or at least complementary, for technology to be present in every single subject or project we are working on.

I would therefore advocate complementarity. First, it can be a subject of study, meaning "we study the technology itself" in terms of computational thinking or robotics. This is how we come to understand how devices work and how we learn about the technology itself. The second is learning with technology. It

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cuts across the curriculum. That is, we are doing mathematics and if needed we use a calculator, GeoGebra or any other technological tool. But, above all, making students think is what matters the most.

It is one thing to "learn about" something and another to "learn with" it. And let's not forget the more attitudinal dimension; that is, everything related to critical thinking and digital well-being: how we are using it, how many hours we are connected and if we are able to put it down. It is important to work on these aspects when teaching our students, to explore how we interact and

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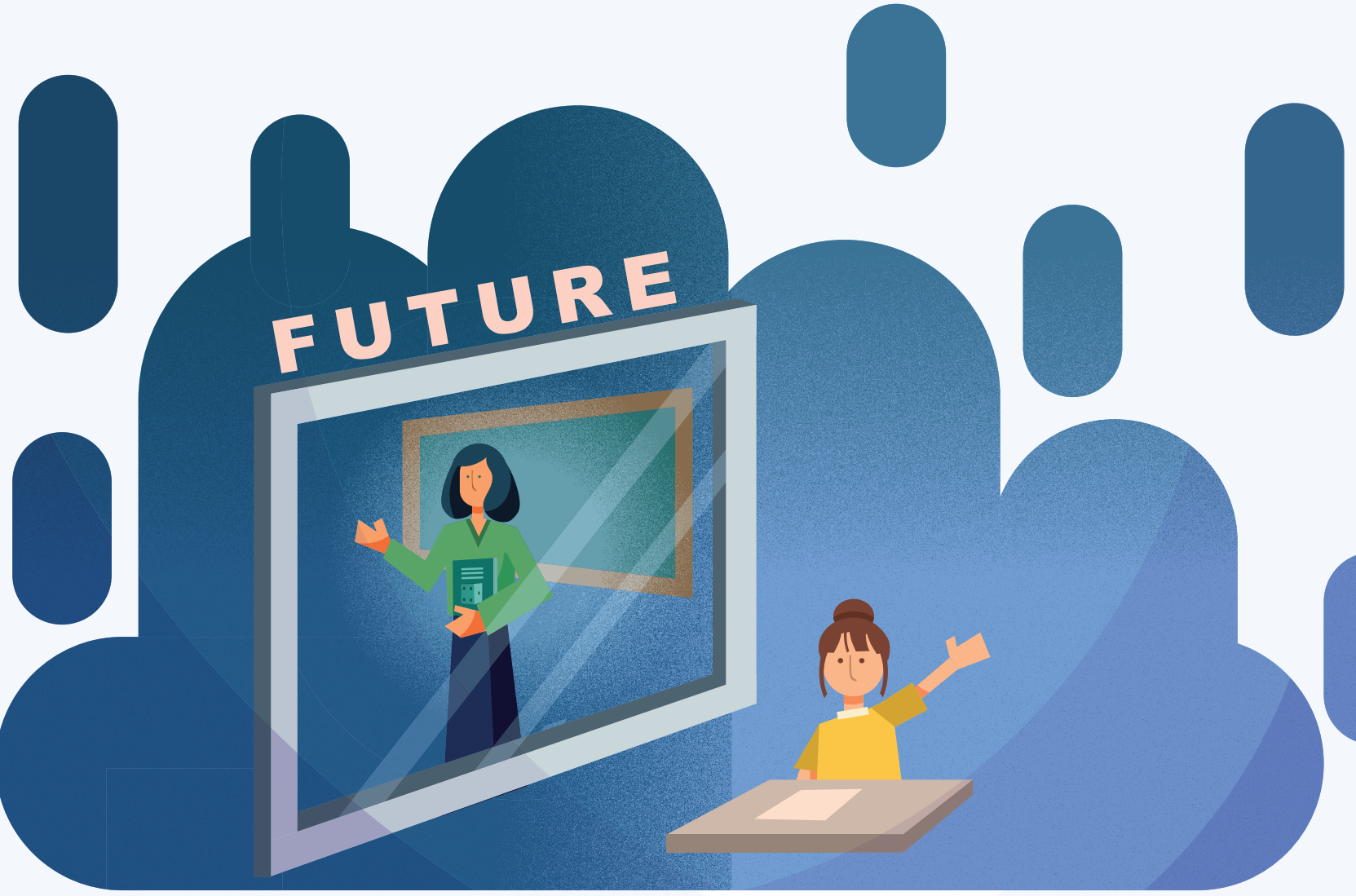
coexist with technology. Nowadays, many of our interactions are not only personal but also technological. Therefore, we will have to spend some time reflecting on this.

**Although digital devices are part of our everyday lives, there is a great deal controversy around the role they should play in schools. As an expert and author of the book "Viure en Digital" (Living Digitally), what would you say to teachers, school principals and families in this regard?**

At school, technology has to serve the school's educational project. We have to be clear about where we want to go. If we are, it will be easy to know where technology fits and what we want to take advantage of. The problem is that we often don't know what we want, or we want so many things that we get mixed up and end



## Technology has to serve the school's educational project. This criterion should guide reflection on the place it should occupy in each educational context

up muddling these issues a bit.

Secondly, I think there is an aspect that has to do with involving the students in all of this. One role that the school should play is giving students a say about how they experience it and how they see it. Any decision must be agreed upon with the students themselves. Let's bring them in; I think their voices are important.

Third, we have to consider families. There has to be a very close dialogue between families and the school, as well as coherence. Faced with the challenges of technology, families are often very confused and bewildered. We need a great deal of understanding here. If the school accepts cell phones, the families and the students themselves have to agree to this. Therefore, we have to decide how they are used.

Finally, great leadership is necessary. There must be a digital project with a digital strategy for the school, and that document should not only talk about all these essentially instrumental issues requested by the administration, but also has them as its own character. For example, "At this school, technology is viewed this way, and we view it this way to facilitate and enhance these issues. Therefore, this translates into such-and-such." This is an ideology, a way of understanding the use of technology which will ultimately be transferred to many other issues. I think it is important to keep this in mind. In this way, we lead, forecast, anticipate and support families, as well as teachers and students.

**What is your opinion about computational thinking and artificial intelligence as curricular content? What do you think is the best way to integrate them into the classroom?**

It is very interesting that it's possible to work in schools from a STEAM perspective, in which computational thinking and artificial intelligence are fully integrated into projects related to science, mathematics, engineering or art. Using technology becomes completely invisible: we talk about space, the moon, gravity in a cross-cutting way in projects where technology is necessary.

It's really helpful if children and teenagers understand what it means to work with machines and if they understand their language. They have to understand that there is no superior entity behind artificial intelligence but rather an algorithm, pure statistics or very sophisticated mathematics. We can mistakenly start to anthropomorphise these machines. We have to demystify some issues. This is how we come to understand everything from how a traffic light works to how most home automation works. It's great because it awakens students' curiosity to learn and especially to know.